Research Article

Pattern of breast lesions on fine-needle aspiration cytology in consecutive 70 cases: a retrospective and prospective analysis of one year

Roma Singh1*, Nipun Saproo2

1Department of Pathology, L.N Medical College and associated J.K Hospital Bhopal, Madhya Pradesh, India
2Department of Medicine Gandhi Medical College, Jammu, Jammu and Kashmir, India

Received: 12 March 2016
Revised: 13 March 2016
Accepted: 13 April 2016

*Correspondence:
Dr Roma Singh,
E-mail: dr.roma16@gmail.com

ABSTRACT

Background: Breast lumps constitute a significant proportion of surgical cases in both developed and developing countries. In outpatient department breast lump is one of the commonest presentations, majority of them are in women and are benign. It is needed to distinguish benign lumps from malignant preoperatively for definite treatment.

Methods: The present study is a retrospective and prospective study of one year and spans duration from 1st January 2015 to 31st December 2015, a total 70 cases were studied which included 67 female patients and 03 male patient. This study is been conducted in the department of pathology, L.N medical college and Associated J.K Hospital and research centre Bhopal (Madhya Pradesh). Cytomorphological features of breast lesions were studied and correlated with clinical and histological features.

Results: The present study was conducted on 70 patients with palpable breast lump. Fibroadenoma was the most common benign breast lesion encountered and lump was the most common symptom.

Conclusion: Most of the breast lesions are benign and needs only reassurance. The FNAC gives result very fast and is accurate therefore FNAC is useful in those cases, to avoid fear of surgery, benign breast lesions commonly affect the younger age group. Fibroadenoma is the most common lesion encountered in benign breast lesions.

Keywords: Breast lump, Benign, FNAC, Cytomorphological.

INTRODUCTION

Breast lumps constitute a significant proportion of surgical cases in both developed and developing countries. In outpatient department breast lump is one of the commonest presentations, majority of them are in women and are benign. Breast mass in women causes anxiety to herself and her family member, which can be reduced by giving assurance that most of breast lumps are benign and early diagnosis by fine needle aspiration cytology.1

It is needed to distinguish benign lumps from malignant preoperatively for definite treatment. Clinical examination would be followed in most patients with a confirmatory diagnosis under the microscope. The advantage of the fine needle aspiration is its speed, safety, convenience, ease of repetition and cheapness. FNAC has high sensitivity, specificity and diagnostic accuracy.3,4 The triple test which includes physical breast examination, mammography and fine-needle aspiration (FNA) and has proved a reliable tool for accurate diagnosis of palpable breast masses.5
FNAC is a widely accepted as a reliable technique in the initial evaluation of palpable and non-palpable breast lumps. FNAC is a minimally invasive technique commonly used in breast, thyroid, and lymph nodes in neoplastic and non-neoplastic diseases. The effectiveness of the study can be maximized with help of a radiologist. This is an easy, quick-to-perform, out-patient and virtually painless procedure which became continuous to be used worldwide, especially in developing countries. Hence, this study was undertaken to see Pattern of palpable breast lesions on fine needle aspiration after confirmation by final histopathology report. Scope of FNA has now extended into identifying the subtypes of benign, malignant lesions and residual disease for the purpose of planning the therapeutic protocol and eventual follow-up.

Benign breast lesions encompasses a heterogeneous group of lesions. Frequently seen benign lesions of breast are inflammatory lesions, epithelial and stromal proliferative lesions and neoplasm.

Normal breasts are virtually never aspirated. Thus, the configuration of normal cells is learned from aspirates of benign lesions. The most common component observed in aspiration biopsies and other sources of breast cells, such as nipple secretions and ductal lavage, is cells derived from ducts. The stroma of the breast is composed of fat and loose or fibrous connective tissue, which may be observed as tissue fragments.

Rosai J and Chinoy RF mentioned recent classification of breast lesions.

**Non neoplastic**

**Inflammatory**

- Acute mastitis: Lactational mastitis, Subareolar mastitis.
- Chronic mastitis: Nonspecific mastitis: Fat necrosis, Granulomatous mastitis, mammary duct ectasia; Specific mastitis: Tuberculosis, Leprosy, Syphilis, Actinomycosis, Fungal infections, Parasitic infections, Viral infections, Sarcoidosis and Reaction to foreign body.
- Benign proliferative lesion: Fibrocystic disease, adenosis, collagenous spherulosis.
- Miscellaneous: Galactocele, Gynecomastia.

**Neoplastic**

**Benign**

**Epithelial lesions**: intraductal papilloma, Lactating adenoma.

**Fibro epithelial lesions**: Fibroadenoma, Phyllodes tumour.

- Malignant.

**METHODS**

The study design is a retrospective and prospective study and spans duration from 1st January 2015 to 31st December 2015. The present study has been conducted in the department of pathology, L.N medical college and Associate J.K Hospital Bhopal (Madhya Pradesh.).

**Inclusion criteria**

Women having clinically palpable breast lumps were included.

**Exclusion criteria**

Clinically non palpable breast were excluded.

Medical records of these patients were retrieved and reviewed. Detailed clinical history including age, sex, marital status, literacy, socio-economic status menstrual history, residence, physical examination and mammography/ultrasonography (USG) findings were noted. A total of 70 patients, were subjected to FNAC of the breast. FNA was done with standard technique.

**Material required for fine needle aspiration cytology**

- Standard 10 cc disposable syringe.
- 22-23 gauge disposable needles.
- Glass slides with diamond pencil.
- Coplin jar with fixative 95% ethyl alcohol.
- Surgical rubber gloves.
- Cotton swabs soaked in sprit.

In case of diffuse swellings left and right regions were aspirated separately. In case of cystic swellings, the cyst contents were aspirated centrifuged and the slides were made from the sediment for the cytological analysis. Slides were stained with MGG, Haematoxylin and Eosin [H and E] and Papanicolaou stains. Special stains like Ziehl Neelsson stain(ZN) were used wherever needed. In case, material obtained was not satisfactory, a repeat aspiration was done. In case of more than one swelling, aspiration was done from each swelling. Diagnosis of each lump was based on physical examination, FNA and/or mammography and/or USG features.
RESULTS

Table 1 and Figure 1 one reveals that maximum incidence of breast lesions was seen in the third decade, followed by fourth decade.

Table 2 and Figure 2 two reveals that most common symptom was lump (100%), followed by pain.

Table 3 and Figure 3 three reveals that most common breast lesion was fibroadenoma seen in 44.2% cases, while the least common was galactocele.

Table 1: Association of age of the patient with various breast lesions on FNAC.

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11-20</td>
<td>06 (8.9%)</td>
<td>Nil</td>
<td>06</td>
</tr>
<tr>
<td>21-30</td>
<td>26 (38.8%)</td>
<td>01</td>
<td>27</td>
</tr>
<tr>
<td>31-40</td>
<td>20 (29.8%)</td>
<td>02</td>
<td>22</td>
</tr>
<tr>
<td>41-50</td>
<td>11 (16.4%)</td>
<td>Nil</td>
<td>11</td>
</tr>
<tr>
<td>51-60</td>
<td>04 (5.9%)</td>
<td>Nil</td>
<td>04</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>03</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 2: Signs and symptoms of the patients with various breast lesions on FNAC.

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
<th>No. of cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lump</td>
<td>100</td>
</tr>
<tr>
<td>Pain</td>
<td>30</td>
</tr>
<tr>
<td>Fever</td>
<td>18</td>
</tr>
<tr>
<td>Cyclic mastalgia</td>
<td>22</td>
</tr>
<tr>
<td>Nipple discharge</td>
<td>05</td>
</tr>
</tbody>
</table>

Table 3: FNAC diagnosis of 70 breast lesions.

<table>
<thead>
<tr>
<th>FNAC diagnosis</th>
<th>No. of cases (N= 70 )</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibroadenoma</td>
<td>31</td>
<td>44.2%</td>
</tr>
<tr>
<td>Fibrocystic disease</td>
<td>21</td>
<td>30 %</td>
</tr>
<tr>
<td>Breast abscess</td>
<td>03</td>
<td>4.2%</td>
</tr>
<tr>
<td>Tubercular mastitis</td>
<td>03</td>
<td>4.2%</td>
</tr>
<tr>
<td>Galactocele</td>
<td>02</td>
<td>2.8%</td>
</tr>
<tr>
<td>Gynecomastia</td>
<td>03</td>
<td>4.2%</td>
</tr>
<tr>
<td>Invasive ductal carcinoma</td>
<td>07</td>
<td>10 %</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Table 4: Benign lesions of breast.

<table>
<thead>
<tr>
<th>Benign lesions</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibroadenoma</td>
<td>31 (49.2%)</td>
</tr>
<tr>
<td>Fibrocystic disease</td>
<td>21 (33.3%)</td>
</tr>
<tr>
<td>Galactocele</td>
<td>02 (3.17%)</td>
</tr>
<tr>
<td>Breast abscess</td>
<td>03 (4.7%)</td>
</tr>
<tr>
<td>Gynecomastia</td>
<td>03 (4.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>63 (100%)</td>
</tr>
</tbody>
</table>

Figure 1: Association of age of the Patient with various breast lesions on FNAC.

Figure 2: Signs and symptoms of the patients with various breast lesions on FNAC.

Table 4 and Figure 4 four reveals that among a total of 63 benign breast lesions maximum cases were of fibroadenoma (49.2%).

The FNAC and histopathological correlation revealed that the total no. of invasive ductal carcinoma was 09 on histopathology in contrast to 07 cases on FNAC. And 03 cases were diagnosed as atypical ductal hyperplasia (ADH) on histopathology which were not diagnosed on FNAC.
**DISCUSSION**

FNA is widely accepted as a reliable technique in the initial evaluation of palpable breast lumps. It is simple, safe, cost-effective, minimally invasive, rapid and as sensitive as biopsy. Primary goal of FNA is to separate benign lesions from malignant lesions for the purpose of planning the therapeutic protocol and uneventful followup.

The most common age group in our study was from 21-30 years. Which is also supported by Farkhanda and co-authors and Echejoh et al in their study. However in contrast to study by Haque et al 30-40 years of age was the most common age group in their study.

The most common diagnosis on FNAC in our study was fibroadenoma (44.2%) followed by fibrocystic disease (30%). Similar results were observed by Farkhanda and coauthors and Tiwari. Majority of patients of fibroadenoma in our study were in 3rd decade (21-30), while majority of patients of fibrocystic disease were in the 4th decade. Similar results were observed by Farkhanda and coauthors.

In our study 3 cases (4.2%) of tubercular mastitis were diagnosed. FNA diagnosis was based on presence of epithelioid cells, caseous necrosis with or without acid-fast bacilli (AFB).

Tuberculous mastitis is relatively rare with reported incidence varying from 3-4.5% in developing countries like India. Few reports, including our dealing with cytomorphologic features have been published in the past. Clinical and radiological features are not diagnostic and easily can be confused with breast cancer or pyogenic abscess, majority presented with painless, firm mass and remaining patients had hard lump.

In our study all the patients presented with lump in the breast. The next most common symptom was pain. Cyclical mastalgia was seen mostly in fibrocystic disease, while axillary lymphadenopathy was seen mainly in...
infiltrating duct carcinoma. Similar findings were corroborated by Echejoh and co-workers.

Gynaecomastia accounted in 4.2% (N = 03) patients between 21–40 years. Gynaecomastia in young age is related to hormonal pubertal changes where as in later years, it may be caused by hormonally active tumors, cirrhosis or medications. Similar observations were made in our study.

Infiltrating duct carcinoma occurred mainly in the sixth decade. Reports from western world state that breast cancer in women occur predominantly in fifth and sixth decades patients.

Cytohistological correlation revealed that all the cytologically diagnosed malignant lesions proved to be malignant on histology.

FNAC has certain limitations as it is difficult to subtype breast malignancies.

CONCLUSION

FNAC is a safe outpatient procedure, which is cost effective. Our study shows most of the breast lesions are benign and needs only reassurance and early diagnosis to prevent patients discomfort and anxiety. The FNAC gives result very fast and is accurate therefore FNAC is useful in those cases, to avoid fear of surgery, benign breast lesions commonly affect the younger age group. Fibroadenoma is the most common lesion encountered in benign breast lesions.

**Funding:** No funding sources

**Conflict of interest:** None declared

**Ethical approval:** None

REFERENCES